



Hantavirus infections in Europe and their impact on public health

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Abstract:

Hantaviruses (genus Hantavirus, family Bunyaviridae) are enveloped tri-segmented negative-stranded RNA viruses each carried by a specific rodent or insectivore host species. Several different hantaviruses known to infect humans circulate in Europe. The most common is Puumala (PUUV) carried by the bank vole; another two important, genetically closely related ones are Dobrava-Belgrade (DOBV) and Saaremaa viruses (SAAV) carried by Apodemus mice (species names follow the International Committee on Taxonomy of Viruses nomenclature). Of the two hantaviral diseases, hemorrhagic fever with renal syndrome (HFRS) and hantaviral cardiopulmonary syndrome, the European viruses cause only HFRS: DOBV with often severe symptoms and a high case fatality rate, and PUUV and SAAV more often mild disease. More than 10,000 HFRS cases are diagnosed annually in Europe and in increasing numbers. Whether this is because of increasing recognition by the medical community or due to environmental factors such as climate change, or both, is not known. Nevertheless, in large areas of Europe, the population has a considerable seroprevalence but only relatively few HFRS cases are reported. Moreover, no epidemiological data are available from many countries. We know now that cardiac, pulmonary, ocular and hormonal disorders are, besides renal changes, common during the acute stage of PUUV and DOBV infection. About 5% of hospitalized PUUV and 16%-48% of DOBV patients require dialysis and some prolonged intensive-care treatment. Although PUUV-HFRS has a low case fatality rate, complications and long-term hormonal, renal, and cardiovascular consequences commonly occur. No vaccine or specific therapy is in general use in Europe. We conclude that hantaviruses have a significant impact on public health in Europe.

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Resource Description

Communication: ☒

resource focus on research or methods on how to communicate or frame issues on climate change;
 surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience: ☒

audience to whom the resource is directed

Health Professional, Researcher

Exposure : ☒

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weather or climate related pathway by which climate change affects health

Unspecified Exposure

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

Health Impact:

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Zoonotic Disease

Zoonotic Disease: Hantavirus Pulmonary Syndrome

Intervention:

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Medical Community Engagement:

resource focus on how the medical community discusses or acts to address health impacts of climate change

A focus of content

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type:

format or standard characteristic of resource

Review

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

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A focus of content